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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,789	07/22/2003	Justin N. Chiang	MP1684-US3	7699

7590 02/19/2004

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EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/624,789

Applicant(s)

CHIANG ET AL.

Examiner

Karl D Easthom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9,11-13 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9,11-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7, 11-12, and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Gould et al. Gould discloses the claimed invention at Fig. 1 with the electrodes the separated wire strands depicted going into the paper (parallel strands) the electrode pairs, on the surface of the laminar sheet 10, and leads 13. The electrodes meet claims 2-3. For claim 4, the device is PTC, see col. 1. In claim 7, the series circuits are across the laminar from parallel strand to parallel strand. In claims 11 and 16, the temperature detection is noted at col. 1, where the resistance changes with temperature. In claim 12, the area appears met at Fig. 1. In claims 15 and 17, there is a plurality of sensors where each is between the electrode pairs, , and the sensing equipment and power is implied in the regulating and control circuits of col. 1, where for example current or temperature change. In claim 18, when the device trips, the location of the hotspot is determined as within the PTC element. Different electrode pairs are members of the array.

4. Claims 1-4, 6-9, 11-13, 15-19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Barret. Barret discloses the claimed invention at Fig. 11 with laminar substrate

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18 or 19, laminar sheets 14 or 18, and electrode pairs 32a, 32d, 34d, and 34a. The pairs are separated from each other and are connected in the resistive network of the polymer which is PTC (claim 4) so it switches as claimed. For claims 2-3, the electrodes are attached as claimed. For claim 6, see col. 2, lines 40-45. For claim 7, the elements on the left are connected in series to the elements to the right for example, and form the groups of claim 13 and 20 in a line. For claims 8 and 19, the PTC resistors of the polymer type each have the claimed relationship inherently, where carbon and polymer PTC have steep curves, see col. 2, lines 50-56, so that such a nominal value is implicit in the equation or inherent in the carbon polymer PTC resistor. For claim 9, the substrate is a PTC element 19 below. The heat there will cause a resistance change in the layers above so that the "for detecting" is met. For claim 11, the sensor is PTC so it can detect changes in temperature. For claim 12, the electrode 32a for example appears to be in the range in Fig. 10. For claims 15-18, the device is in a circuit for controlling a heater or for over current protection, where at col. 1, so that current or temperature changes are detected. The change is by the change in resistance for claim 16, and there must be power in a circuit for claim 17. For claim 18, there will be hot spots, so that they are allowed.

5. Claims 1-9, 12-13, 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Horsma et al. The claimed invention is disclosed at Fig. 8 with laminar substrate 19, laminar sheet 21, and electrodes 22, 27 (meeting claims 2-3), the device able to function as a sensor since it is a PTC device (claim 4). Some of the material between electrodes is in series as claimed for claims 1 and 7. For claim 6, see col. 11, lines 28-30. For claim 5, see the 40 mil thickness at col. 23, Ex. 6. For claim 8 and 19, the  $R_t$  is nominal for the polymer PTC devices, which is why in part they are called PTC. For claim 9, the cw layer is the substrate. For claim


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12, the area of 20 meets the claim as depicted at Fig. 8. In claim 18, when the device trips, the location of the hotspot is determined as within the PTC element. Different electrode pairs are members of the array. Similar reasoning applies for claims 11, 16-18 as the remarks above. That is, the device is a self-regulating heater so that power and current and consequent temperature detection is implicit due to the control. For claims 13, 15, and 20, the different groups are between the numerous electrodes in a line and in series.

6. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrett. The claimed invention is disclosed except for the thickness. Barrett discloses a foot print of 9.5mm x 6.7mm, with the laminate thickness at Fig. 12 for example smaller, and it is well known that resistance is controlled by the thickness, as Barrett discloses at col. 3, lines 1-5, so that it would have been obvious to vary the thickness to vary the resistivity.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D Easthom whose telephone number is (272) 571-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (272) 571-1989. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

  
KARL D. EASTHOM  
PRIMARY EXAMINER

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Karl D Easthom  
Primary Examiner  
Art Unit 2832

KDE